

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1-92. (CANCELLED)

93. (NEW) An isolated nucleic acid molecule that is selected from the group consisting of:

(i) a nucleic acid sequence that encodes a polypeptide having at least 95 % sequence identity to the polypeptide contained in SEQ ID NO:2 and which specifically binds to a bitter ligand that specifically binds the T2R76 polypeptide contained in SEQ ID NO:2;

(ii) a nucleic acid sequence that has the sequence contained in SEQ ID NO:1; and

(iii) a nucleic acid sequence that hybridizes under high stringency conditions to the nucleic acid sequence contained in SEQ ID NO:1 wherein high stringency conditions are incubating for 15 minutes in 0.02X SSC at 65 degrees C and which nucleic acid sequence encodes a taste receptor polypeptide that specifically binds to a bitter ligand that specifically binds to the T2R76 polypeptide contained in SEQ ID NO:2.

94. (NEW) The isolated nucleic acid sequence of claim 93 which encodes a polypeptide that possesses greater than 95% sequence identity to the polypeptide contained in SEQ ID NO:2 and which specifically binds to at least one bitter ligand specifically bound by the T2R76 polypeptide contained in SEQ ID NO: 2.

95. (NEW) The isolated nucleic acid sequence of claim 93 which encodes a polypeptide having at least 99% sequence identity with the T2R76 polypeptide contained in SEQ ID NO: 2 and which polypeptide specifically binds at least one bitter specifically bound by the T2R76 polypeptide contained in SEQ ID NO:2.

96. (NEW) The isolated nucleic acid sequence of claim 93 which comprises the sequence contained in SEQ ID NO: 1.

97. (NEW) The isolated nucleic acid sequence of claim 93 which encodes a polypeptide comprising the sequence contained in SEQ ID NO: 2.

98. (NEW) The isolated nucleic acid sequence of claim 93 which is selected from the group consisting of an mRNA, cRNA, cDNA and genomic sequence.

99. (NEW) The isolated nucleic acid sequence of claim 93 which is operably linked to at least one sequence that regulates the expression of said sequence in a heterologous host cell.

100. (NEW) The isolated nucleic acid sequence of claim 93 which is comprised in an expression vector.

101. (NEW) The isolated nucleic acid sequence of claim 100 wherein said vector is selected from the group consisting of a plasmid, cosmid, bacteriophage, transposon-mediated transformation vector and virus.

102. (NEW) The isolated nucleic acid sequence of claim 101 wherein the vector is a viral vector.

103. (NEW) The isolated nucleic acid sequence of claim 101 wherein the vector is a plasmid.
104. (NEW) The isolated nucleic acid sequence of claim 93 which is operably linked to an inducible promoter.
105. (NEW) The isolated nucleic acid sequence of claim 93 which is operably linked to a constitutive promoter.
106. (NEW) A cell containing the isolated nucleic acid sequence of claim 93 wherein said cell further comprises a sequence encoding a G protein that functionally couples to the T2R76 polypeptide encoded by said isolated sequence.
107. (NEW) The cell of claim 106 wherein said G protein is a promiscuous G protein.
108. (NEW) The cell of claim 106 wherein said G protein is selected from the group consisting of Galpha15, Galpha16, Gq, gustducin and transducin.
- 109 (NEW) The isolated nucleic acid molecule of claim 103 which further comprises a sequence that encodes a detectable marker.
110. (NEW) An isolated host cell that has been transfected or transformed with an isolated nucleic acid sequence according to claim 93.
- 111 (NEW) The isolated host cell of claim 110 which is a eukaryotic cell.
112. (NEW) The isolated host cell of claim 110 which is selected from the group consisting of mammalian cells, insect cells, amphibian cells, bacterial cells, and yeast cells.

113. (NEW) The isolated host cell of claim 110 which is selected from the group consisting of an HEK-293 cell, CV-1 cell, HeLa cell, COS cell and a Sf9 cell.
114. (NEW) The isolated host cell of claim 110 which is a human cell.
115. (NEW) The isolated host cell of claim 114 which is a HEK-293 cell.
116. (NEW) The isolated host cell of claim 110 which further expresses a G protein that functionally couples with the T2R76 polypeptide encoded by said isolated nucleic acid sequence.
117. (NEW) The isolated host cell of claim 110 which further expresses another T2R polypeptide.